AVI 216

Flight V
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COURSE OUTLINE

AVI 216
Course Number

Flight V
Course Title

Hours: 1 / 3
Lecture / Laboratory

Pre-requisite: See Below
Co-requisite:

Credits
Implementation
Spring 2017

Catalog Description:

This course is limited to only a Helicopter Rated Commercial Certificated Instrument Rated Pilot. The student is expected to acquire the aeronautical skill necessary to meet the requirements for the Single Engine Land and Commercial Certificate with an Instrument Rating. This course consists of 76.8 hours of flight training or the time needed to meet the FAA Practical Test Standards and Airman Certification Standards. Be Advised additional time may be needed to meet the minimum standards. **FEE REQUIRED.**

Pre-requisites: To be eligible for this program the student must hold:
- A current FAA Helicopter Commercial Certificate with Instrument Rating
- FAA-approved Medical
- U.S. Citizenship or TSA Approval

Required Texts/Other Materials:

1. Owner's and Operator's Manual of Aircraft used in Training
4. Cessna Pilot Kit - Commercial Pilot

Last Revised: Fall 2016

Course Coordinator: Judith L. Stillwagon

Information Resources:

Text books: Guided Flight Discovery Instrument/Commercial by Jeppesen Sanderson
The Advanced Pilots Flight Manual by William K. Kershner
Stick and Rudder by Wolfgang Langewiesche

Other Learning Resources:

- Learning Center and Tutoring in the Library
- Student's Flight Instructor at Trenton-Mercer Airport
- AOPA (www.aopa.org)
- Gleim Software (www.gleim.com)
- Cessna Pilot Kit - Instrument Rating
Lesson Progress Checks:

- 11  Progress Check for Solo Flight
- 24  Commercial Maneuvers to Airman Certification Standards
- 28  Night Operations
- 41  Instrument to Airman Certification Standards
- 50  Complex Airplane Check
- 53A Final Instrument Check
- 53B Final Commercial Check

Course Goals:
The Course goals are outlined in detail in the FAA Commercial and Instrument Airman Certification Standards. The tasks are carefully enumerated within each area of operation. Please refer to this document as it specifically relates to these 11 areas of operation...

Commercial Airman Certification Standards:

1. Pre-flight Preparation – Items F, G
2. Pre-flight Procedures – Items A, C, D, F, G
3. Airport Operations – NONE
4. Takeoffs, Landings and Go-Arounds – Items A, B, C, D, E, F, K, L
5. Performance Maneuvers – All
6. Ground Reference Maneuver – All
7. Navigation – NONE
8. Slow Flight and Stalls – All
9. Emergency Operations – All
10. High Altitude and Operations – All
11. Post-flight Procedures – Item A

Instrument Airman Certification Standards:

1. Pre-Flight Preparation - NONE
2. Pre-Flight Procedures - Items A, C
3. ATC Clearances - NONE
4. Instrument Flight - All
5. Navigation Systems - NONE
6. Instrument Approach Procedures - All
7. Emergency Operations - All
8. Post-Flight Procedures - All

GENERAL EDUCATION GOALS AND OBJECTIVES

| (✓) | MCCC General Education Goals & Objectives [Check all that are addressed directly and seriously (not peripherally) in the course.] | Activities, projects, assignments, and exams that evaluate student learning of the course’s General Education goals and objectives |

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<table>
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<tr>
<th>1. Communication -- English Language: Students will communicate effectively in both speech and writing.</th>
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<td>✓ 1.1. Students will comprehend and evaluate what they read, hear and see.</td>
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<tr>
<td>✓ 1.2. Students will state and evaluate the views and findings of others.</td>
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<tr>
<td>✓ 1.3. Students will write and speak clearly and effectively in standard American English.</td>
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<td>✓ 1.4. Students will logically and persuasively state and support orally and in writing their points of view or findings.</td>
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<td>1.5. Students will evaluate, revise and edit their communication.</td>
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<td>✓ 1.6. Students will develop an understanding of sensory communication and other forms of non-verbal communication.</td>
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Students will interpret and comprehend Practical Test Standards for the Commercial Certificate and the Airman Certification Standards for the Instrument Rating. Radio communications with ATC will be demonstrated and understood.

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<th>2. Communication -- Foreign Language: Students will have the opportunity to develop competence in a Foreign Language.</th>
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<tr>
<td>2.1 Students will learn basic vocabulary, grammar and everyday conversation in a foreign language.</td>
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<td>2.2 Students will recognize the uniqueness of foreign countries, their people and their cultures.</td>
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<td>2.3 Students will gain a measure of facility at interaction in a foreign language on topics involving that language's history, its cultural and historical context, and current issues of interest to native speakers of the language.</td>
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<th>3. Critical thinking, problem solving and information literacy: Students will use critical thinking and problem solving skills in analyzing information gathered through different media and from a variety of sources.</th>
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<tr>
<td>✓ 3.1. Students will identify a problem and analyze it in terms of its significant parts and the information needed to solve it.</td>
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<td>3.2. Students will use appropriate library tools such as cataloging systems to access information in reference publications, periodicals, bibliographies and databases.</td>
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<td>✓ 3.3. Students will use computers to access, analyze or present information, solve problems, and communicate with others.</td>
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<tr>
<td>3.4. Students will formulate and evaluate possible solutions to problems, and select and defend the chosen solutions.</td>
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Students will be able to assess his/her ability to do Commercial maneuvers; determine whether a cross country flight can be safely accomplished; examine an aircraft during pre-flight and determine if the aircraft is safe to fly; be confronted with simulated flight emergencies, analyze the event and choose the proper course of action; utilize online weather to evaluate and determine whether or not it is safe to fly.

Students will be able to utilize computers to interpret and analyze weather.
3.5. Students will recognize weaknesses in arguments, such as the use of false or disputable premises, suppression of contrary evidence, faulty reasoning, and emotional loading.

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<tr>
<th>(✓) General Education Goals and Objectives [Check all that are addressed directly and seriously (not peripherally) in the course.]</th>
<th>Activities, projects, assignments, and exams that will evaluate student learning of the goal and/or objective(s)</th>
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<tr>
<td><strong>4. Ethical dimension: Students will recognize, analyze and assess ethical issues and situations.</strong></td>
<td>Students will comply with the code of Federal Regulations involving Commercial Pilot Operations, interpret and defend their positions and justify their actions based upon the regulations.</td>
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<tr>
<td>✓ 4.1. Students will identify ethical implications of an issue or a situation.</td>
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<td>✓ 4.2. Students will analyze and evaluate the strengths and weaknesses of different perspectives on an ethical issue or a situation.</td>
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<td>✓ 4.3. Students will integrate their knowledge, take a position on an ethical issue or a situation, and defend it with logical arguments.</td>
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<td><strong>5. Quantitative skills: Students will apply appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.</strong></td>
<td>Students will be able to locate parameters associated with weight and balance, performance characteristics for airplanes, then apply them to graphs and charts and choose the appropriate course of action.</td>
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<tr>
<td>✓ 5.1. Students will translate quantifiable problems into mathematical terms and solve these problems using mathematical or statistical operations.</td>
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<td>✓ 5.2. Students will construct graphs and charts, interpret them, and draw appropriate conclusions.</td>
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<td><strong>6. Science and technology: Students will apply the scientific method of inquiry to draw conclusions based on verifiable evidence, use scientific theories and knowledge to understand the natural world, and explain the impact of scientific theories, discoveries and technological changes on society.</strong></td>
<td>Students will demonstrate a working knowledge of density altitude, glide ratios, best rate of climb, GPS, navigation, dead reckoning and pilotage.</td>
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<td>✓ 6.1. Students will identify and recall scientific information and theories, and, integrating and applying this knowledge, will use the scientific method to solve problems and draw conclusions from data.</td>
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<tr>
<td>✓ 6.2. Students will distinguish between scientific theory and scientific discovery, will distinguish between science and its technological application, and will explain the impact of science and technology on society.</td>
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6.3. Students will demonstrate a working knowledge of the subject matter of one of the physical or biological sciences.

✓ 6.4. Students will demonstrate a working knowledge of a major domain of technological application.

**FLIGHT LESSON 1 – Primary Aircraft**

*Dual Flight*

**INSTRUCTION**

1.5 Flight

1.5 Ground

**LEARNING OBJECTIVES:**

The student will be introduced to the training airplane, its operating characteristics, cabin controls, instruments, and systems. He/She will learn the preflight activities necessary to insure the airplane is safe for flight. Introduction of some basic flight maneuvers also will be accomplished to help the student learn the use of the engine and flight controls.

**CONTENT:**

1. Preflight Discussion
2. Introduction
   A. Preflight
   B. Use of checklist
   C. Equipment and Familiarization
      (1) First aid kit location
      (2) Fire extinguisher locations
   D. Engine Start and Warmup
   E. Basic Radio Procedures
   F. Pretake off Checklist
   G. Straight-and-Level Flight
   H. Medium Bank Turns (20º - 45º)
   I. Hand Signals
   J. Leveling off from a climb and descent
3. Post Flight Discussion

**COMPLETION STANDARDS:**

The student will display an understanding of the use of the checklist and safety considerations of engine starting and runup. At the completion of this lesson, he will be able to start the engine and perform a run-up with instructor assistance. Additionally, the student will understand the control inputs necessary for leveling off and maintaining in turns and level flight.

**FLIGHT LESSON 2 – Primary Aircraft**

*Dual*

**INSTRUCTION**

1.2 Flight

0.5 Ground

**LEARNING OBJECTIVES:**
The student will display an understanding of airplane control use to maintain altitude control. Further, during this lesson, the student will become familiar with the techniques for climbs, descents and maintaining specific ground tracks.

1. Preflight Discussion
2. Review
   A. Basic Radio Procedures
   B. Equipment Familiarization
   C. Medium Bank Turns (25° - 45°)
   D. Straight-and-level Flight
   E. Leveling off from a climb and a descent
3. Introduction
   A. Aircraft Serving Procedures (oil, fuel, hydraulic fluid)
   B. Normal and Crosswind Taxi
   C. Normal and Crosswind Takeoffs
   D. Traffic Patterns (AIM and airport requirements)
   E. Straight-and-level Flight
   F. Climbs and Climbing Turns (VR)
   G. Glides (VR) power off 60-65 knots
   H. Level off from Climbs and Glides (VR)
   I. Minimum Controllable Airspeed
   J. Tracking a straight line
   K. Forward and side slips
   L. Normal and Crosswind Landings
   M. Use of Mixture control
4. Post-Flight Discussion

COMPLETION STANDARDS:

The student will understand the techniques used to perform straight-and-level flight, establish proper climbs and descents, and control airspeed with power and attitude. The student will be expected to enter the traffic pattern properly with the instructor’s aid. He will perform all preflight activities, including engine start, taxi, and engine runup, with a minimum of instructor assistance. He will display and understanding of the technique used to control the airplane’s ground track during crosswind conditions. Additional flight time will be assigned at this time, if needed, to meet proficiency requirements.

FLIGHT LESSON 3 – Primary Aircraft

Dual

LEARNING OBJECTIVES:

The student will review each of the listed maneuvers and procedures to increase his proficiency. Through this review, the student’s ability to control the airplane’s attitude about its three axes and to maintain specific ground tracks will be increased.

CONTENT:

1. Pre-Flight Discussion
2. Review
   A. Airplane Servicing Procedures
   B. Normal and/or Crosswind Taxi
   C. Normal and/or Crosswind Takeoff
   D. Tracking a Straight Line
   E. Medium Bank Turns
   F. Traffic Pattern Departure
   G. Straight-and-Level Flight (VR)
   H. Climb and Climbing Turns
   I. Level off from Climbing Turns and Glides
   J. Minimum controllable Airspeed
   K. Traffic Pattern Entry Procedures
   L. Forward and Side slips
   M. Normal and/or Crosswind Landings

3. Post-Flight Discussion

COMPLETION STANDARDS:

The student will be able to perform climbs, glides, turns, straight-and-level flight, and flight at minimum controllable airspeed with proper coordination, while maintaining airspeed within 10 knots and headings within 20° of that desired. The student will also display an understanding of how the control of airplane attitude affects altitude and headings. In addition, he must display an understanding of traffic pattern departure and entry procedures and the use of the appropriate wind correction angles necessary to maintain specific ground tracks.

FLIGHT LESSON 4 – Primary Aircraft

Dual Flight

CONTENT:

1. Pre-Flight Discussion
2. Review
   A. Use of Checklist
   B. Radio Communication Procedures
   C. Engine Starting
   D. Straight-and-Level Flight (VR)
   E. Use the Mixture Control
   F. Medium Bank Turns (VR)
   G. Climbs and Climbing Turns (VR)
   H. Glides and Gliding Turns (VR)
   I. Leveloff Procedures
   J. Minimum Controllable Airspeed

3. Introduction
   A. Best Rate and Obstacle Clearance Climbs and Turns
   B. Steep turns
   C. Descents and Descending Turns
   D. Airspeed and Configuration Changes
   E. Minimum Controllable Airspeed
   F. Stalls with Power off and Flaps Up
4. Post-Flight Discussion

COMPLETION STANDARDS:

Proficiency in maintaining airspeed within 10 knots of appropriate airspeeds during the performance of all maneuvers will be expected. Loss or gain of altitude will be restricted to within 200 feet and heading control within 20° while in straight-and-level flight.

FLIGHT LESSON 5- Primary Aircraft
Dual Flight

LEARNING OBJECTIVES:

The student will continue to gain proficiency in those maneuvers listed as review. In addition, he/she will become familiar with ground reference maneuvers which reinforce the student’s ability to correct for wind drift. Takeoff and departure stalls and collision avoidance will be introduced to each safety of flight. In addition, stall awareness, spin entry, spins and spin recovery techniques will be discussed and logged on the folder and endorsed in the logbook.

CONTENT:

1. Pre-Flight Discussion
   A. Stall awareness, spin entry, spins and spin recovery techniques will be discussed. Coordinated control inputs will be emphasized.

2. Review
   A. Straight-and-Level Flight
   B. Tracking a Straight Line
   C. Medium Bank Turns
   D. Minimum controllable Airspeed
   E. Normal and/or Crosswind Takeoffs
   F. Traffic Patterns
   G. Stalls with Power Off
   H. Steep Turns
   I. Normal and/or Crosswind Landings

3. Introduction
   A. S-Turns Across a Road
   B. Turns About a Point and Rectangular Courses
   C. Approach-to-Landing Stalls
   D. Takeoff and Departure Stalls
   E. Collision Avoidance Procedures
   F. Critical Attitude Recovery

4. Post-Flight Discussion

COMPLETION STANDARDS:

The student will understand the execution of ground reference maneuvers. He/She will be able to discuss the proper techniques for wind drift correction and entry to maneuvers. Additionally, he/she will be able to
maintain a specific ground track while a straight flight. Takeoff and departure stalls will be performed without harsh or abrupt control usage during recovery and with a minimum loss of altitude.

**FLIGHT LESSON 6- Primary Aircraft**
*Dual Flight*

**INSTRUCTION**
1.2 Flight
0.5 Ground

**LEARNING OBJECTIVES:**

The student will practice each of the review items to gain proficiency. He will learn emergency procedures to cope with usual situations. Also, procedures used to change airspeed and confirmation of the aircraft will be practiced so the student will learn to control the aircraft’s attitude at various airspeeds.

**CONTENT:**

1. Pre-flight Discussion
2. Review
   A. Best Rate-of-Climbs and Turns
   B. Obstacle Clearance Climbs and Turns
   C. Minimum Controllable Airspeed
   D. Turns About a Point
   E. Stall Series
3. Introduction
   A. Simulated Engine Failure
   B. Steep Turns
   C. Short Field and Soft Field Takeoffs and Landings
4. Post-Flight Discussion

**COMPLETION STANDARDS:**

The student will display an understanding of possible emergencies and the procedures necessary for safe conduct of flight. During changes in airspeed and configuration, altitude will be maintained within 200 feet and heading within 20°.

**FLIGHT LESSON 7- Primary Aircraft**
*Dual Flight*

**INSTRUCTION**
1.2 Flight
0.5 Ground

**LEARNING OBJECTIVE**

The student will practice each of the review items to gain proficiency. He will learn emergency procedures to cope with usual situations. Also, procedures used to change airspeed and confirmation of the aircraft will be practiced so the student will learn to control the aircraft’s attitude at various airspeeds.
CONTENT:

1. Pre-Flight Discussion
2. Review
   A. Medium Bank Turns
   B. Climbs, Vx, Vy, Enroute
   C. Obstacle Clearance Climbs
   D. Stall Series
   E. Steep Turns
   F. Simulated Engine Failure
   G. Airspeed and Configuration Changes
   H. Normal and Crosswind Takeoffs and Landings
3. Introduction
   A. Go-Around Procedures
   B. Accelerated Stalls
4. Post-Flight Discussion

COMPLETION STANDARDS:

The student will perform proficiency all of the basic flight maneuvers. He will demonstrate the ability to maintain altitude within 150 feet, heading within 15° and airspeed control within 5 knots of preselected airspeed. Evaluation will be based on smoothness and judgment in all maneuvers. Additional flight time will be assigned, if needed, to meet proficiency requirements.

FLIGHT LESSON 8- Primary Aircraft
Dual Flight

LEARNING OBJECTIVES:

During this lesson, the student will review each of the listed maneuvers to gain proficiency in preparation for solo flight. Additionally, to further prepare the student for solo flight, wake turbulence avoidance and electrical system emergencies are introduced.

CONTENT:

1. Pre-Flight Discussion
   A. Simulated engine failure on takeoff, initial climb, cruise, descent, and landing pattern.
   B. Aircraft and personal documents.

2. Review
   A. Medium Bank Turns
   B. Best Rate of Climb and Turns
   C. Obstacle Clearance Climb
   D. Stall Series, including accelerated stall
   E. Steep Turns
   F. Simulated Engine Failure
   G. Airspeed and Configuration Changes
   H. Ground reference maneuvers

3. Introduction
   A. Wake Turbulence Avoidance
   B. Electrical System Failure
C. Electrical Fire and Smoke
D. Inoperative Elevator Trim
4. Post-Flight Discussion

COMPLETION STANDARDS:

At the completion of this lesson, the student will demonstrate the correct procedures for wake turbulence avoidance and the handling of electrical system emergencies. In addition, he will be able to perform each of the basic maneuvers listed in the review and demonstrate the ability to maintain altitude within 150 feet, heading within 10° and airspeed within 5 knots of that desired.

FLIGHT LESSON 9 – Primary Aircraft
Dual Flight

INSTRUCTION
1.2 Flight
0.5 Ground

LEARNING OBJECTIVES:

During this lesson, the student will practice those maneuvers and procedures listed as review to gain the proficiency necessary for solo flight. This lesson will include pattern practice at the Mercer County Airport.

CONTENT:

1. Pre-Flight Discussion
2. Review
   A. Straight-and-Level Flight
   B. Medium Bank Turns
   C. Minimum Controllable Airspeed
   D. Normal and/or crosswind Takeoffs
   E. Stall Series
   F. Steep turns
   G. S-Turns Across a Road
   H. Turns About a Point
   I. Traffic Pattern
   J. Normal and/or Crosswind Landings
   K. Wake Turbulence
3. Post-Flight Discussion

COMPLETION STANDARDS:

The student will display skill and understanding in the execution of all maneuvers and procedures practiced. During ground reference maneuvers, he will use proper wind drift correction and display proper use of aircraft controls for coordination. Where appropriate, altitude will be maintained within 125 feet, airspeed within 5 knots of the desired speed, and heading within 10° of the preselected heading.

FLIGHT LESSON 10 – Primary Aircraft
Dual/Solo Flight

INSTRUCTION/SUPERVISED SOLO
2.0 Flight
1.0 Ground
LEARNING OBJECTIVES:

During this lesson, the student will demonstrate his/her ability to safely operate the airplane in the local airport traffic pattern, as sole occupant. In addition, he/she will complete a supervised solo flight.

CONTENT:

1. Pre-Flight Discussion

2. Review
   A. Medium Bank Turns
   B. Best Rate of Climb
   C. Obstacle Clearance Climb
   D. Power On/Power Off Stalls and Accelerated Stalls
   E. Steep Turns
   F. Simulated Engine Failure
   G. Airspeed and Configuration Changes
   H. Normal and/or Crosswind Takeoffs and landings
   I. Go-Around Procedures
   J. Slips to a landing
   K. No flap landings

3. Introduction
   A. Supervised Solo in the Traffic Pattern

4. Post-Flight Discussion

COMPLETION STANDARDS:

The student will display the ability to successfully perform and exercises the privileges of solo operation of the aircraft, enabling him to make his first solo flight safely. He will complete this solo flight in the traffic pattern.

FLIGHT LESSON 11 – Primary Aircraft

Dual Flight

Progress Check

1.2 Flight

0.5

LEARNING OBJECTIVES:

This lesson will be conducted as a progress check by the Chief Instructor or his/her assistant to determine that the student can safely operate the aircraft as sole occupant. This includes safe operation to the practice area, performance of maneuvers, and returning to KTTN.

CONTENT:

1. Pre-Flight Discussion

2. Review
   A. Minimum controllable Airspeed
   B. Power on/Power off Stalls
C. Traffic Pattern Entry and Departure  
D. Normal/Crosswind Landings and Takeoffs  
E. Collision Avoidance Procedures  
F. Ground reference maneuvers  
G. Go-Around Procedures  
H. Accelerated Stall Procedures  

3. Post Flight Discussion  

COMPLETION STANDARDS:  

The student will display the proficiency and competency required to act as pilot in command of the aircraft on subsequent solo flights. An understanding and demonstration of proper radio procedures, traffic procedures, traffic procedures on the ground, and traffic pattern entry and departure at the airport will be required. 

FLIGHT LESSON – 12  

Dual Lesson  

INSTRUCTION  

2.0 Flight  
0.5 Ground  

LEARNING OBJECTIVES:  

Through this dual Day – VFR cross-country flight, the student will learn proper method for incorporation into cross-country operations, the piloting skills and knowledge areas learned previously. The student will learn the proper step-by-step procedures for planning and conducting cross-country flights. In addition to the close supervision and aid the student will receive this flight, he will be evaluated carefully on all maneuvers and procedures to determine his ability to conduct a cross-country flight as the solo occupant of the airplane. 

This lesson will meet the two-hour dual flight requirement including pilotage, dead reckoning and radio aids. One Leg must be at least 100NM from the departure airport.  

CONTENT:  

1. Pre-Flight Discussion  
   A. Flight Preparation  
      (1) Weather analysis and notices to airmen  
      (2) Navigation log  
      (3) Airports  
      (4) Aircraft performance and loading  
      (5) FAA Flight Plan  

2. Review  
   A. Emergency Procedures  
   B. Airspeed and Configuration Changes  
   C. Short-Field and Soft Field Takeoffs  
   D. Short-Field and Soft Field Landings  
   E. Enroute Radio Procedures  
   F. VOR/GPS Procedures  
   G. Critical Attitude Recovery  

3. Introduction  
   A. Three-Leg, One-Day, Cross-Country Flight  
      (1) Pilotage Navigation  
      (2) Dead Reckoning Navigation  
      (3) VOR/GPS Navigation
4. Post-Flight Discussion

COMPLETION STANDARDS:
The student will be expected to demonstrate the ability to conduct cross-country flight operations safely as sole occupant of the airplane. Complete familiarization with proper preflight action, flight planning, weather analysis, and available publications should be displayed. The student will conduct all duties of pilot in command with smoothness, accuracy, and competence.

FLIGHT LESSON 13- Primary Aircraft

Dual Flight

INSTRUCTION
2.0 Flight
1.0 Ground

LEARNING OBJECTIVES:
The student will receive instruction for the dual night cross-country flight. During this flight one leg must be more than 100 NM from the departure airport. The remaining night Takeoffs and landings requirements will be accomplished. The student will plan experience the night flying conditions. This flight must be at least 2 hours of duration in night-VFR conditions.

CONTENT:

1. Pre-Flight Discussion

2. Review
   A. Night Cross Country Planning
   B. VOR/GPS Navigation
   C. Night Pilotage and Dead Reckoning

3. Post-Flight Discussion

COMPLETION STANDARDS:
This lesson is complete when the student has accomplished the flight as planned. The student will have a complete understanding of conducting a cross country at night.

FLIGHT LESSON 14 – Primary Aircraft

Solo Flight

INSTRUCTION
2.5 Flight
LEARNING OBJECTIVES:

This lesson consists of a solo cross-country flight. The student's instructor will review the cross country planning before the student begins the flight.

CONTENT:

1. Pre-Flight Discussion
2. Review
   A. Departure Procedures
   B. Communications
   C. Establish Predetermined Ground Track
   D. Identifying VFR Checkpoints
   E. Use of navigation Log
   F. Calculating Groundspeed
   G. Emergency Procedures
3. Post-Flight discussion

COMPLETION STANDARDS:

The student will perform the cross country as planned and discuss any deviations with his/her instructor.

FLIGHT LESSON 15 – Primary Aircraft
Dual Lesson

LEARNING OBJECTIVES:

The student will learn the techniques used to enter and control the bank angle during steep power turns and steep spirals, and the techniques used to judge altitude during accuracy landing approaches. This knowledge will aid the student in learning to control the airplane near its performance limits.

CONTENT:

1. Pre-Flight Discussion
2. Introduction
   A. Steep Power Turns (50° Bank)
   B. Steep Spirals
   C. Accuracy Landings
   D. Lazy Eights
   E. Chandelle
3. Review
   A. Short Field and Soft Field Takeoffs and Landings
4. Post-Flight Discussion
COMPLETION STANDARDS:

At this stage of instruction, the student will be graded primarily on this understanding of the advanced maneuvers rather than his performance. During the steep power turns, the student should understand the techniques necessary to hold the bank within $\pm 15^\circ$, altitude within 250 feet, and roll-out within $\pm 15^\circ$. During the steep spirals, the student should be able to demonstrate an understanding of the techniques necessary to hold the heading, upon recovery, within $\pm 20^\circ$ and the airspeed within $\pm 10$ knots. Acceptable performance for accuracy landings should be such that the student does not undershoot the selected point on the runway and the student should understand the selected point on the runway and the student should understand the techniques required to affect a landing within 200 feet beyond the designated mark.

FLIGHT LESSON 16 – Primary Aircraft

Solo

Solo Flight

1.2 Flight

LEARNING OBJECTIVES:

The student will review flight maneuvers to gain proficiency and increase his understanding of the performance criteria of each maneuver.

CONTENT:

1. Review
   A. Chandelles
   B. Steep Power Turns
   C. Steep Spirals$^{\infty}$
   D. Accuracy Landings
   E. Slips to Landings
   F. Lazy Eights
   G. Short Field/Soft Field Take Offs and Landings

2. Introduction
   A. Eights on Pylons

3. Post-Flight Discussion

COMPLETION STANDARDS:

These lessons are complete when the student has performed each of the listed maneuvers. He/She should attempt to maintain altitude control while executing step power turns within 250 feet, bank within $10^\circ$, and recover on a heading within $15^\circ$ of the entry heading. During the execution of steep spirals, bank should be held within $10^\circ$ of the entry heading, and airspeed should be 10 knots. Accuracy landings should be achieved within 200 feet of the designated mark.

FLIGHT LESSON 17 – Primary Aircraft

Solo

Solo Flight

1.2 Flight

LEARNING OBJECTIVES:

During this flight lesson, the student will review and practices the maneuvers learned in the previous two lessons. He will learn to control the airplane while his attention is diverted to outside references and to obtain its maximum performance while precisely pitch and bank attitude.
CONTENT:

1. Pre-Flight Discussion

2. Review
   A. Steep Power Turns
   B. Steep Spirals
   C. Accuracy Landings
   D. Slips to a Landings
   E. Chandelles
   F. Lazy Eights
   G. Eights on Pylons

3. Post-Flight Discussion

COMPLETION STANDARDS:

The student is expected to perform the maneuvers which he/she has had an opportunity to practice in a manner which demonstrate increased understanding. While executing chandelles, the student should understand how the affects a roll-out so as to complete the maneuver after 180º of turn. The airspeed, at the time of roll-out, should be within 10 knots of stalling speed. During the execution of eights on pylons, the student should show reasonable proficiency without the use of slips.

FLIGHT LESSON 18 – Primary Aircraft
Dual Flight

INSTRUCTION
1.2 Flight
0.5 Ground

LEARNING OBJECTIVES:

The student will demonstrate the listed commercial maneuvers with proficiency. The instructor will direct the student on correcting maneuvers as needed.

CONTENT:

1. Review
   A. Steep Power Turns
   B. Steep Spirals
   C. Chandelles
   D. Lazy Eights
   E. Accuracy Landings
   F. Eights on Pylons
   G. Short Field and Soft Field Take Offs and Landings

2. Post-Flight Discussion

COMPLETION STANDARDS:
This lesson is complete when the student has performed each of the listed maneuvers. In addition, the student should realize increasing insight and precision in advanced flight maneuvers. Increased proficiency should be evident by the student’s increased coordination and smooth control application. In addition, he/she will learn the control usage necessary to perform the lazy eight without persistent slipping.

**FLIGHT LESSON 19 – Primary Aircraft**

*Solo Flight*

**Solo**

1.2 *Flight*

**LEARNING OBJECTIVES:**

The student will review commercial maneuvers and correct deficiencies from previous dual flight.

**CONTENT:**

1. Pre-Flight Discussion

2. Review
   A. Steep Power Turns
   B. Steep Spirals
   C. Chandelles
   D. Accuracy Landings
   E. Lazy Eights
   F. Eights on Pylons

3. Post-Flight Discussion

**COMPLETION STANDARDS:**

The student will complete maneuvers in a precise, coordinated manner. Accuracy landings must be within 200’ of selected touchdown points.

**FLIGHT LESSON 20 – Primary Aircraft**

*Dual Flight*

**INSTRUCTION**

1.2 *Flight*

0.5 *Ground*

The student will demonstrate the listed commercial maneuvers with proficiency. The instructor will direct the student on correcting maneuvers as needed.

**CONTENT:**

1. Pre-Flight Discussion

2. Review
   A. Steep Power Turns
   B. Steep Spirals
   C. Chandelles
   D. Lazy Eights
   E. Eights on Pylons
   F. Accuracy Landings
G. Emergency Procedures

3. Post-Flight Discussion

COMPLETION STANDARDS:

Performance will be judged on the student’s ability to plan and execute maneuvers in a precise, coordinated manner. Entry procedures, wind position, emergency procedures, and accuracy landings within 200’ of selected touchdown point represent objectives which must be demonstrated.

FLIGHT LESSON 21 – Primary Aircraft

Dual Flight

INSTRUCTION

1.2 Flight
0.5 Ground

LEARNING OBJECTIVES:

During this lesson, the student will show added proficiency in the performance of advance maneuvers, and make further progress toward meeting commercial pilot-proficiency.

CONTENT:

1. Pre-Flight Orientation

2. Review
   A. Steep Power Turns
   B. Steep Spirals
   C. Chandelies
   D. Lazy Eights
   E. Eights on Pylons
   F. Accuracy Landing

3. Post-Flight Discussion

COMPLETION STANDARDS

This lesson is complete when the student can perform the maneuvers with proper entry, airspeed +10 knots of recommended airspeed, and altitude within 150 feet as applicable.

FLIGHT LESSON 22 – Primary Aircraft

Dual Flight

INSTRUCTION

1.2 Flight
0.5 Ground

LEARNING OBJECTIVES:
During this lesson, the student will demonstrate improved performance on the commercial maneuvers.

CONTENT:
1. Pre-Flight Discussion

2. Review
   A. All Commercial Maneuvers
   B. Accuracy Landings

3. Post-Flight Discussion

COMPLETION STANDARDS:

The student at the completion of this lesson will demonstrate that he can perform chandelles and accuracy landings according to Commercial Pilot Practical Test Standards.

FLIGHT LESSON 23 – Primary Aircraft
Solo Flight
Solo 1.2 Flight

LEARNING OBJECTIVES:

During these lessons, the student will continue to practice and review commercial maneuvers.

1. REVIEW
   A. Commercial Maneuvers
   B. Accuracy Landings

COMPLETION STANDARDS

The student at the completion of these maneuvers should be approaching the skill level as described in Practical Test Standards.

FLIGHT LESSON 24 – Primary Aircraft
Dual Flight
Progress Check 1.2 Flight 0.5 Ground

LEARNING OBJECTIVES:

This lesson will be conducted as a progress check by the Chief Instructor, his/her assistant, or Check Instructor to determine the student's ability to correctly perform each of the listed maneuvers and procedures.

CONTENT:
1. Pre-Flight Orientation

2. Review
   A. Steep Power Turns
   B. Steep Spirals

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C. Chandelles
D. Lazy Eights
E. Accuracy Landings
F. Slips to Landings
G. Eights on Pylons

3. Post-Flight Discussion

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to perform all advanced flight maneuvers demonstrating the ability to preplan and execute the maneuver according to that plan. During the execution of the maneuvers, the student will be expected to demonstrate the ability to perform at the competency level of the Commercial Airman Certification Standards.

FLIGHT LESSON 25 – Primary Aircraft
Dual Flight

INSTRUCTION
1.2 Flight
0.5 Ground

LEARNING OBJECTIVES:

The student will be introduced to the operational and regulatory aspects of night operations. The lesson will include takeoffs and landings in the local area to prepare the student for solo night operations.

CONTENT:

1. Pre-Flight Discussion
   A. Aircraft Equipment (91.205) and MEL Lists (91.213)
   B. Aircraft Lights (91.209)
   C. Recency of Experience (61.57)
   D. Weight and Balance including adding and removing weight and the shifting of weight.

2. Introduction
   A. Aircraft Preflight Action at night
   B. Take offs and Landings at night
   C. Emergency Procedures.
   D. Physiological Effects.
   E. Controlled Airport and non control tower Operations
   F. MCA
   G. Steep Turns

3. Post-Flight Discussion

COMPLETION STANDARDS

At the conclusion of this lesson, the student will demonstrate an adjustment of visual references for night takeoffs and landings. The student will also correctly answer questions pertinent to the aircraft's electrical and lighting systems and demonstrate that he can safely act as pilot in command during local night flight.
LEARNING OBJECTIVES:

During the two dual lessons, the student will review and gain proficiency in night flight operations.

CONTENT:

1. Pre-flight Discussion
2. Review
   A. Takeoffs
   B. Steep Turns
   C. Minimum Controllable Airspeed
   D. Landings
   E. Night Operations at controlled and non control tower airports
3. Post-Flight Discussion

COMPLETION STANDARDS

The two lessons are complete when the student had conducted the assigned flights. During the lessons, the student will gain proficiency in his/her night flight abilities. All landing approaches and initial climbs after takeoff should be stabilized. Altitude control during turns and flight at minimum controllable airspeed should be within 150 feet.

LEARNING OBJECTIVES:

This progress check, conducted by the Chief Instructor or his assistant, evaluates the student’s ability to perform local night flight operations with the competency of a commercial pilot. Safety in night flight operations, control tower and non control tower operations, and emergency situations will be emphasized.

CONTENT:

1. Pre-Flight Discussion
2. Review
   A. Preflight Action
   B. Takeoffs and Landings
   C. Steep Turns
   D. Minimum Controllable Airspeed
   E. Emergency Procedures
   F. Controlled and Uncontrolled Airport Operations
3. Post-Flight Discussion

COMPLETION STANDARDS

The student will demonstrate that he can safely act as pilot in command in the night environment, which includes the use of the proper procedures and the handling of emergency situations.

FLIGHT LESSON 29
Instrument Flight – MCCC AATD

INSTRUCTION
1.0 AATD

LEARNING OBJECTIVES

During the lesson, the student is introduced to the Advance Aviation training device (AATD). Additionally, they will be introduced to basic attitude instrument flight in the training device and will learn the technique for establish power settings for the various phases of flight.

CONTENT:

1. Pre-Flight Discussion
2. Introduce
   A. Pattern A
   B. Pattern B
3. Post-Flight Discussion

COMPLETION STANDARDS

The student will display understanding of the use of the instrument checklist. The student will be required to display understanding of the proper procedures for entering and executing the basic instrument flight maneuvers. Roll out from turns should be within 10° of the preselected heading. Altitude will be held within 100 feet, and airspeed within 10 knots of assigned airspeed.

FLIGHT LESSON 30
INSTRUMENT FLIGHT – MCCC AATD

INSTRUCTION
1.5 AATD

LEARNING OBJECTIVES:

The student will acquire additional proficiency in altitude instrument flying and he will learn the basics of IFR radio communication.

CONTENT:

1. Pre-Flight Discussion
2. Review
A. Pattern A and B

3. Post-Flight Discussion

COMPLETION STANDARDS

The student will be able to perform Patterns A and B with increasing proficiency. The student will also be familiar with IFR communications procedures.

FLIGHT LESSON 31
INSTRUMENT FLIGHT – MCCC AATD

LEARNING OBJECTIVES

In this lesson, the student will review maneuvers and procedures learned in previous lessons. In addition, the student will be introduced to VOR and ILS procedures. From an established position, the student will learn how to proceed to the navigational fixes via simulated clearance routes prescribed by the instructor.

CONTENT:

1. Pre-Flight Discussion
2. Review
   A. Enroute Cruise and Descent, Approach Cruise and Descent, and Climbs With Proper Power Settings
3. Introduction
   A. VOR and ILS Procedures
   B. VOR Holdings Patterns
   C. Missed Approach Procedures
   D. Circle to Land Procedures
   E. Landing from a straight in approach
   F. Radio Communication Procedures
   G. IFR Pretakeoff Checklist
4. Post-Flight Discussion

FLIGHT LESSON 32
INSTRUMENT FLIGHT – MCCC AATD

LEARNING OBJECTIVES

The student will review VOR and ILS approach procedures as well as holding pattern procedures. In addition, the student will be introduced to GPS Approach Procedures.

CONTENT:

1. Pre-Flight Discussion

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2. Review
   A. VOR and ILS Procedures
   B. VOR Holding Procedures
   C. Missed Approach Procedures
   D. Circle to Land Procedures
   E. Radio Communications

3. Introduction
   F. GPS Approach Procedures

4. Post-Flight Discussion

COMPLETION STANDARDS

The student will demonstrate the ability to locate himself and proceed to the hold via the instructor's clearance. During the radio navigation and orientation procedures the student will be expected to display proficiency in maintaining airspeed within 5 knots of the appropriate airspeed during the performance of all maneuvers. Loss or gain of altitude will be restricted to within 100 feet and heading controlled within 5° while in straight flight configuration.

FLIGHT LESSON 33 - Instrument Airplane
Dual Flight

INSTRUCTION
1.3 Flight
1.0 Instrument
0.5 Ground

LEARNING OBJECTIVES

The student will learn the proper method of controlling the aircraft by sole reference to the instrument while executing holdings procedures and non Precision Approaches. The student will practice the various methods of entering the standard and non-standards holding patterns, along with the proper method of departing the assigned holding pattern.

CONTENT:

1. Pre-Flight Discussion

2. Review
   A. Takeoffs and Landings
   B. Missed Approach Procedures
   C. Circle To Land Procedures and/or Landing from a straight in approach
   D. Holding Pattern Procedures
   E. Non Precision Approaches
   F. Navigation and Airport Operations

3. Post-Flight Discussion

COMPLETION STANDARDS
The student will display understanding of the holding pattern procedures, GPS and VOR Approaches. He/She will be able to maintained within 150 feet, airspeed within 10 knots, and heading within 10°.

**FLIGHT LESSON 34 - Instrument Aircraft**

**Dual Flight**

**INSTRUCTION**

1.3 Flight
1.0 Instrument
0.5 Ground

**OBJECTIVES**

The student will gain proficiency in executing holding patterns, VOR, GPS, and ILS Procedures.

1. Pre-Flight Discussion

2. Review
   A. Takeoffs and Landings
   B. Go Around Procedures
   C. ILS Approaches
   D. GPS Approaches
   E. VOR Approaches
   F. Holding Patterns
   G. Missed Approach Procedures
   H. Navigation and Airport Operations

3. Post-Flight Discussion

**COMPLETION STANDARDS**

The student will display an increased proficiency in understanding and executing holding patterns and instrument approach procedures. The student will select the proper holding pattern entry within 5°. Altitude will be maintained within 100 feet, and heading within 5°. During descents, the rate of descent will be within 100 feet, per minute 10 knots of the selected airspeed.

**FLIGHT LESSON 35 – Instrument Aircraft**

**Dual Flight**

**INSTRUCTION**

1.2 Flight
1.0 Instrument
0.5 Ground

**LEARNING OBJECTIVES**

The student will gain proficiency in following published procedures for precision and non precision approaches. Upon completion of the approaches, the student will learn to execute a missed approach, as outlined on the approach chart.

**CONTENT**

1. Pre-Flight Discussion

2. Review
   A. Takeoffs and Landings
B. Precision Approaches  
C. Non Precision Approaches  
D. Missed Approach Procedures  
E. Power Settings  
F. Navigation and Airport Operations  

3. Post-Flight Discussions

COMPLETION STANDARDS

Altitude will be held within 100 feet of the prescribed altitudes during the approach and no more than 50 feet above specified minimum altitudes, and never below MDA after passing the final approach fix on a non precision approach. The student will display, through performance and discussion, complete understanding of all of the approach segments and minimums, as shown on the approach charts.

FLIGHT LESSON 36 – Instrument Aircraft  
Dual Flight

LEARNING OBJECTIVES

This lesson will consist of a review of precision and non precision approach procedures including executing the approach, missed approach procedures, circle to land procedures, and landing from a straight in approach. The student will have a complete understanding of all phases of an instrument approach. In addition DME ARCS will be reviewed and increased proficiency displayed.

CONTENT

1. Pre-Flight Discussion

2. Review  
   A. Takeoffs and Landings  
   B. Precision and Non Precision Approaches  
   C. Missed Approach Procedures  
   D. Circle to Land Procedures  
   E. Landing from a Straight In Approach  
   F. Navigation and Airport Operations

3. Post-Flight Discussion

COMPLETION STANDARDS

The student will display a continued increase in proficiency in approach procedures. The altitude maintained on the final approach segment of a non-precision approach will be no more than 50 feet above specified minimum altitude and never below MDA. On a precision approach, the altitude will be maintained within plus or minus
two dots on the glide slope. The localizer tracking will be held within plus or minus two degrees of the localizer course.

FLIGHT LESSON 37 – Instrument Aircraft

Dual Flight

INSTRUCTION
1.2 Flight
1.0 Instrument
0.5 Ground

LEARNING OBJECTIVES

This lesson will consist of a review of precision and non precision approach procedures including executing the approach, missed approach procedures, circle to land procedures, and landing from a straight in approach. The student will have a complete understanding of all phases of an instrument approach.

CONTENT:

1. Pre-Flight Discussion
2. Review
   A. Takeoffs and Landings
   B. Precision Approaches
   C. Non Precision Approaches
   D. Holding Patterns
   E. Missed Approach Procedures
   F. Landing from a straight in approach and/or circle to land
   G. Navigation and Airport Operations
3. Post-Flight Discussion

COMPLETION STANDARDS

The student will display a complete understanding and increase in proficiency in precision and non precision approach procedures. The altitude maintained on the final approach segment of the nonprecision approach will be no more than 50 feet above specific minimum altitude and never below MDA. The precision approach course and glide slope will be held with in two dots of centerline.

FLIGHT LESSON 38 – Instrument Aircraft

Dual Flight

INSTRUCTION
2.5 Flight
2.3 Instrument
1.0 Ground

LEARNING OBJECTIVES

During this lesson, the student will be introduced to basic IFR cross-country procedures, including departure, enroute, and arrival. This introduction will aid the student in obtaining the maximum benefit from the extended cross-country that follows in Flight Lesson 39.
CONTENT:

1. Pre-Flight Discussion

2. Introduction
   A. IFR Cross-Country Planning
   B. Filling an IFR Flight Plan
   C. Obtaining an IFR Clearance
   D. IFR Departure
   E. Emergency Procedures
   F. IFR Arrival

3. Review
   A. Takeoffs and Landings
   B. Precision and Non Precision Approaches
   C. Missed Approach Procedures
   D. Landing from a Straight In Approach and/or Circle to Land Procedures
   E. Navigation and Airport Operations

4. Post-Flight Discussion

COMPLETION STANDARDS

The student will demonstrate an understanding of all procedures and maneuvers required on this IFR cross-country flight. The Student will have a working knowledge of the appropriate FARs and other sources of necessary data, including NWS reports and forecasts, the AIM, enroute charts, and approach charts.

FLIGHT LESSON 39 – Instrument Aircraft

Dual Flight

INSTRUCTION

4.0 Flight
3.7 Instrument
1.0 Ground

LEARNING OBJECTIVES

During this cross-country flight, the student will apply all prior learning experiences in the instrument training program. The student will learn the proper procedures for planning and flying extended IFR flights. The trips will be at least 250 nautical miles on Federal airways, including VOR, GPS and ILS approaches at different airports. The route will be TTN-IPT-CXY-TTN or TTN-CXY-MIV-FTN or a similar approved route. This flight will satisfy the dual cross-country requirement in FAR 141 (Appendix C, Section 3D). Partial panel operations will be continuous part of this flight.

CONTENT:

1. Pre-Flight Orientation

2. Review
   A. Takeoffs and Landings
   B. IFR Flight Planning
   C. Weather Briefing
   D. En Route Cruise and Descent, Approach Cruise and Descent, and Power Settings
   E. Level Off Procedures
F. Emergency Procedures
G. En Route Radio Communications Procedures
H. VOR and GPS Approaches
I. VOR Tracking and Bracketing
J. Aircraft Performance
K. FAA Flight Plan

3. Introduction
   A. Departure
      1) Taxi clearance
      2) En route clearance
      3) ATIS
      4) ATC communications
   B. En route
      1) Navigation
      2) Communication
      3) Discussion of weather avoidance
      4) Planning to an alternate
   C. Emergency Procedures
      1) Communications failure
      2) Engine failure
   D. Arrival
      1) ATC clearance
      2) Landing Clearance
      3) Missed Approach Procedures
      4) Circle To Land Procedures
      5) Landing From a Straight In Approach

4. Post-Flight Discussion

COMPLETION STANDARDS

The student will demonstrate the ability to safely conduct IFR cross-country flight operations as pilot in command of the airplane. The student will display complete familiarity with the proper pre-flight action, flight planning, weather analysis, and publications available. The student will conduct all duties of pilot in command with smoothness, understanding, accuracy, and competence. At the conclusion of this flight, the student will demonstrate complete understanding of IFR radio communications and navigation procedures and the use of altitudes and nav-aids in an emergency, as stated in CFR 91.185.

FLIGHT LESSON 40 – INSTRUMENT AIRCRAFT
Dual Flight

INSTRUCTION
1.5 Flight
1.3 Instrument
0.5 Ground

LEARNING OBJECTIVE

The objective of this lesson is to prepare the student for the progress check. The lesson will review all areas of flight training that pertain to the instrument pilot as per the Airman Certification Standards.

CONTENT:
1. Pre-Flight Orientation
   A. The student and flight instructor will discuss the operational aspects of IFR Flight to determine the student's knowledge of the Airmen Certification Standards.

2. Flight
   A. This flight will consist of a thorough review of all areas of training to insure the student meets the instrument proficiency requirements as per the Airmen Certification standards.

3. Post-Flight Discussion

COMPLETION STANDARDS

The student will demonstrate the knowledge and flight skills as outlined in the Airmen Certification Standards.

BRIEFING LESSON

INSTRUCTION

2.0 Ground

During this briefing lesson, the student will review the entire overview of instrument pilot operations, privileges, and responsibilities as per the Airmen Certification Standards. The student will prepare for this lesson by covering instrument pilot operations and typical instrument oral examination questions.

Before this lesson, the following will be examined for completeness and accuracy.

CONTENT:

1. Review
   A. Flight Planning
   B. Regulations
   C. En Route Charts
   D. Instrument Approach Procedures
   E. Emergencies
   F. Aircraft Systems and Performance

COMPLETION STANDARDS

The instructor will determine, at the completion of this lesson, that the student is qualified in all areas of understanding to perform as a competent instrument pilot. This briefing lesson must immediately precede Flight Lesson 41.

FLIGHT LESSON 41 – INSTRUMENT AIRCRAFT

Dual Flight

PROGRESS CHECK

1.5 Flight
2.0 Ground
1.3 Instrument

LEARNING OBJECTIVE
This lesson will be conducted as a progress check by the Chief Instructor, his/her assistant or check instructor to determine the student’s proficiency and understanding of all maneuvers and procedures necessary to conduct flight operations as an instrument pilot. The emphasis on this lesson will also include partial panel operations.

CONTENT:

1. Pre-Flight Preparation
   This oral examination will determine whether the student exhibits the correct knowledge to act as Pilot in Command under IFR in the National Airspace System describing pilot qualifications, weather information, and cross-country flight planning as per the Airmen Certification Standards.

2. Progress Check
   This flight will be conducted according to the Instrument Pilot Airmen Certification Standards, with evaluation to be made by the Chief Instructor or his assistant as to the student’s ability to perform successfully the duties of an instrument pilot.

3. Post-Flight Discussion

COMPLETION STANDARDS

This lesson is complete when the student displays the ability to perform each IFR maneuver and procedure with the proficiency and safety of a competent instrument pilot. At all times during the progress check, the student must demonstrate good judgment and a thorough understanding of IFR operations in the national airspace system. The student’s performance during each maneuver and procedure must meet or exceed the minimum acceptable performance standards outlined in the current Instrument Airmen Certification Standards.

FLIGHT LESSON 42 – Complex Aircraft

Dual Flight

INSTRUCTION

1.3 Flight
1.0 Ground

LEARNING OBJECTIVES

During initial introduction to the complex airplane, the student will learn and the operation of the airplane systems. This will prepare him for the introduction of the advance maneuvers in the complex airplane during Flight Lesson 43.

CONTENT:

1. Pre-Flight Discussion

2. Introduction
   A. Preflight Operation
   B. Engine Start Checklist
   C. Pretakeoff Checklist
   D. Climbs at Vx and Vy
E. Straight-and-Level Flight
F. Turns
G. Minimum Controllable Airspeed
H. Approach and Departure Stalls
I. Gear and Flap Operations
J. Propeller Operations
K. Systems Operations
L. Normal and Crosswind Takeoffs and Landings

3. Post-Flight Discussion

COMPLETION STANDARDS

The student will demonstrate an understanding of the basic operational aspects and systems of the aircraft, including a rapid reorientation to the visual references and airplane attitude associated with each of the maneuvers demonstrated.

FLIGHT LESSON 43 – Complex Aircraft

Dual Flight

INSTRUCTION

1.2 Flight
1.0 Ground

LEARNING OBJECTIVE

The student will learn the various takeoffs, landings, maneuvers, and emergency operations in the complex airplane.

CONTENT:

1. Pre-Flight Discussion

2. Review
   A. Flight at Minimum Controllable Airspeed
   B. Approach and Departure Stalls
   C. Normal/Crosswind Takeoffs and Landings

3. Introduction
   A. Emergency Systems Operations
   B. Short-field Takeoffs and Landings
   C. Chandelles
   D. Steep Spirals

4. Post-Flight Discussion

COMPLETION STANDARDS
At the end of this instructional period, the student will be making unassisted takeoffs and landings of various types and will display a through understanding of the normal and emergency operations of the airplane systems. The will display they are competent for solo flights in the complex airplane. If satisfied, the flight instructor may sign the student off for PIC.

**FLIGHT LESSONS 44 through 47 - Complex Aircraft**

**Dual Flights**

**INSTRUCTION**

1.0 Each Lesson

**LEARNING OBJECTIVES**

During these lessons, the student will practice basic and advanced maneuvers in the complex aircraft with major emphasis on landing operations. The student will complete 4 lessons with each lesson being 1.0 each.

**CONTENT:**

1. Review
   A. Steep Spirals
   B. Chandeliers
   C. Lazy Eights
   D. Minimum Controllable Airspeed
   E. Approach and Departure Stalls
   F. Short fields takeoffs and Landings
   G. Accuracy Landings
   H. Normal/Crosswind Landings
   I. Steep Power Turns

**COMPLETION STANDARDS**

The four lessons are complete when the student has conducted the assigned flights. During these lessons, the student will gain increased proficiency by performing each maneuver using smooth, coordinated control inputs. Additionally, they should attempt to make all landings on or within 200 feet beyond a designed point on the runway.

**FLIGHT LESSON 48 – Complex Aircraft**

**Dual Flight**

**INSTRUCTION**

1.3 Flight
0.5 Ground

**LEARNING OBJECTIVES**

During this lesson in the complex aircraft, IFR procedures will be performed.

**CONTENT:**

1. Pre-Flight Discussion

2. Introduction
   A. Complex IFR Procedures
3. Review
   A. Precision/Non Precision Approaches
   B. Missed Approach Procedures
   C. Circle to Land Procedures
   D. Landing From a Straight in Approach

4. Post-Flight Discussion

COMPLETION STANDARDS

At the end of this lesson, the student will understand the flight characteristics and power settings necessary to perform IFR procedures in the complex airplane.

FLIGHT LESSON 49 – Complex Aircraft
Dual Flight

INSTRUCTION
1.2 Flight
0.5 Ground

LEARNING OBJECTIVES

During this lesson, the student will practice listed maneuvers in the complex airplane to gain proficiency and to prepare for the progress check in Flight Lesson 50.

CONTENT:

1. Pre-Flight Discussion

2. Review
   A. Steep Power Turns
   B. Lazy Eights
   C. Chandelles
   D. Minimum Controllable Airspeed
   E. Power On/Power Off Stalls
   F. Short field Takeoffs and Landings
   G. Accuracy Landings
   H. Normal/Crosswind Landings

3. Post-Flight Discussion

COMPLETION STANDARDS

This lesson is complete when the student maintains assigned altitude within 100 feet, airspeed within 10 knots, and heading within 10 degrees.
LEARNING OBJECTIVES

During the lesson in the complex airplane, the student will complete a progress check with the Chief Instructor, his/her Assistant, or Check Instructor to determine their competency in the airplane. Proper procedures in the complex aircraft will be emphasized.

CONTENT:

1. Pre-Flight Discussion

2. Review
   A. Preflight Inspection
   B. Normal Takeoffs
   C. Emergency Systems Operation
   D. Power On/Power Off Stalls
   E. Go Around Procedures
   F. Normal Landings

3. Post-Flight Discussion

COMPLETION STANDARDS

The student will display commercial pilot proficiency in performing normal and emergency operations in the complex airplane. The student will also display an understanding of the power settings while maintaining assigned altitude within 100 feet, airspeed within 10 knots, and heading within 10 degrees.
G. Emergency Descents
H. Emergency Procedures
I. Slips to landings
J. Short-field and Soft-field Takeoffs and Landings
K. Accuracy Landings
L. Eights on Pylons

3. Post-Flight Discussion

COMPLETION STANDARDS

The student should meet Commercial Pilot Airman Certification Standards in the performance of each maneuver.

FLIGHT LESSON 52
Dual Flight

INSTRUCTION
2.0 Flight
0.5 Ground

LEARNING OBJECTIVES

The student shall review IFR procedures in preparation for the final instrument phase check.

CONTENT:

1. Pre-Flight Discussion

2. Review
   A. Simulated or actual instrument flight plan
   B. IFR Preflight Procedures and Checklist
   C. IFR Departure
   D. VOR, ILS, GPS Approaches
   E. Partial Panel
   F. IFR Communications
   G. Holds
   H. Missed Approach Procedures
   I. Circle to Land Procedures

3. Post-Flight Discussion

COMPLETION STANDARDS:

The student’s performance will indicate that he is ready to begin the final instrument phase checks.

FLIGHT LESSON 53A
Instrument Flight

Progress Check
1.5 Flight
1.5 Ground
LEARNING OBJECTIVES

This progress check is conducted by the Chief Instructor, his/her Assistant, or Check Instructor. The objective is to determine that the student meets the Instrument Airman Certification Standards.

CONTENT:

1. Pre-Flight Discussion

2. Review
   A. IFR Cross-Country Planning
   B. Filing an IFR Flight Plan
   C. IFR Preflight Inspection
   D. IFR Takeoff Preparation
   E. Obtaining an IFR Clearance
   F. IFR Departure Procedures
   G. Radio Procedures
   H. Enroute Procedures
   I. VOR Procedures
   J. Arrival Procedures
      (1) ILS approach
      (2) VOR approaches
      (3) GPS Approaches
      (4) Missed approach Procedures
      (5) Circle To Land Procedures
      (6) Landing From a Straight In Approach

   K. Simulated Emergency Procedures
      (1) Loss of Communications
      (2) Radio failure
      (3) Engine failure
      (4) Instrument failure
      (5) Engine failure
      (6) Systems failure

3. Post-Flight Discussion

COMPLETION STANDARDS:

At the completion of this flight, the student will display a complete understanding of IFR procedures. He/She also will demonstrate the necessary knowledge and skill to operate safely as pilot in command during cross-country flights.

The student's performance during each maneuver and procedure will meet or exceed the minimum performance requirements, as outlined in the current Commercial Pilot Practical Test Standards.
LEARNING OBJECTIVES:

This progress check by the Chief Instructor, his/her Assistant, or Check Instructor is to determine whether the student meets and/or exceeds the Commercial Pilot Airman Certification Standards. The Chief Instructor, his/her Assistant, or Check Instructor will assign maneuvers to be covered based on the requirements of the Airman Certification Standards.

CONTENT:

1. Pre-Flight Discussion

2. Review
   A. VFR Maneuvers
      (1) Chandelles
      (2) Lazy Eights
      (3) Steep power turns
      (4) Normal/Crosswind Takeoffs and Landings
      (5) Short Field and Soft Field Takeoffs and Landings
      (6) Steep spirals
          Eights on Pylons
      (7) Slips
      (8) Accuracy landings
      (9) Power On, Power Off, and Accelerated Stalls
      (10) MCA
      (11) Emergency Operations
      (12) Emergency Descents

3. Post-Flight Discussion

COMPLETION STANDARDS:

At the completion of this flight, the student will display a complete understanding of VFR procedures and competency to act as Pilot In Command as a Commercial Pilot in a Single Engine Land Airplane.

The student’s performance during each maneuver and procedure will meet or exceed the minimum performance requirements, as outlined in the current FAA Commercial Pilot Flight Test Standards.

EVALUATION OF STUDENT LEARNING

The grade in AVI 216 will be determined by an Oral and Practical Examination as outlined in both the Commercial Practical Test Standards and the Instrument Airman Certification Standards.

The final evaluations consist of questions applicable on Commercial and Instrument flight operations, planning and knowledge. The flights will consist of commercial maneuvers, complex operations and instrument procedures. The procedures for these evaluations will be found in the latest issues of the Commercial Practical Test Standards and Instrument Airman Certification Standards.
Specific Grading:

A = Meets 3 areas and exceeds 8 areas of operation - Commercial
   Meets 2 areas and exceeds 6 areas of operation - Instrument
B = Meets 5 areas and exceeds 6 areas of operation - Commercial
   Meets 4 areas and exceeds 4 areas of operation - Instrument
C = Meets 7 areas and exceeds 4 areas of operation - Commercial
   Meets 6 areas and exceeds 2 areas of operation - Instrument
D = Meets 11 areas of operation - Commercial
   Meets 8 areas of operation - Instrument
F = Does not meet Airman Certification Standards requirements in any one of the Instrument and
   Commercial Standards.

ACADEMIC INTEGRITY STATEMENT OMB 210

Mercer County Community College is committed to Academic Integrity -- the honest, fair and continuing pursuit
of knowledge, free from fraud or deception. This implies that students are expected to be responsible for their
own work and that faculty and academic support services staff members will take reasonable precautions to
prevent the opportunity for academic dishonesty. The college recognizes the following general categories of
violations of Academic Integrity, with representative examples of each. Academic Integrity is violated whenever
a student:

A. Uses or obtains unauthorized assistance in any academic work.
   - copying from another student's exam
   - using notes, books, electronic devices or other aids of any kind during an exam when prohibited
   - stealing an exam or possessing a stolen copy of an exam.

B. Gives fraudulent assistance to another student
   - completing a graded academic activity or taking an exam for someone else.
   - giving answers to or sharing answers with another student before, during or after an
     exam or other graded academic activity.
   - sharing answers during an exam by using a system of signals.

C. Knowingly represents the work of others as his/her own, or represents previously completed
   academic work as current.
• submitting a paper or other academic work for credit which includes words, ideas, data or creative work of others without acknowledging the source.

• using another author’s words without enclosing them in quotation marks, without paraphrasing them or without citing the source appropriately.

• presenting another individual’s work as one’s own.

• submitting the same paper or academic assignment to another class without the permission of the instructor.

D. Fabricates data in support of an academic assignment.

• falsifying bibliographic entries.

• submitting any academic assignment which contains falsified or fabricated data or results.

E. Inappropriately or unethically uses technological means to gain academic advantage.

• inappropriately or unethically acquiring material via the Internet or by any other means.

• using any electronic or hidden devices for communication during an exam.

Each instructor and academic support service area is authorized to establish specific guidelines consistent with this policy.

CONSEQUENCES FOR VIOLATIONS OF ACADEMIC INTEGRITY

For a single violation, the faculty member will determine the course of action to be followed. This may include assigning a lower grade on the assignment, assigning a lower final course grade, failing the student in the course, or other penalty appropriate to the violation. In all cases, the instructor shall notify the Chair of the Academic Integrity Committee of the violation and the penalty imposed. When two (or more) violations of academic integrity are reported on a student, the Academic Integrity Committee (AIC) may impose disciplinary penalties beyond those imposed by the course instructors. The student shall have the right to a hearing before the AIC or a designated AIC subcommittee.

APPEALS
The student has a right to appeal the decision of the instructor or the Academic Integrity Committee. Judicial procedures governing violations of Academic Integrity are contained in the Student Handbook.

Approved by the MCCC Board of Trustees March 18, 2004

CLASSROOM CONDUCT STATEMENT

It is the student's responsibility to attend all of their classes. If they miss a class meeting for any reason, students are responsible for all content that is covered, for announcements made in their absence, and for acquiring any materials that have been distributed in class. If students walk into a class after it has begun, it is expected that they choose a seat close to where they entered the room so that they do not disrupt the class meeting.

Students are expected to follow ordinary rules of courtesy during class sessions. Engaging in private, side conversations during class time is distracting to other students and to the instructor. Leaving class early without having informed the instructor prior to class is not appropriate. Unless there is an emergency, leaving class and returning while the class is in session is not acceptable behavior. Disruptive behavior of any type, including sharpening pencils during class while someone is speaking, is not appropriate.

The college welcomes all students into an environment that creates a sense of community of pride and respect; we are all here to work cooperatively and to learn together.
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